



## MARKED-UP SPECIFICATION

AT PAGES 4, 5, 15, 16

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[illegible]

Figure 10 is a schematic representation of an optical fiber drawing apparatus. ]

**Pages 15, 16.**

The sintered perform is then used for drawing optical fiber in the conventional way [. Figure 10 shows] using an optical fiber drawing apparatus with [preform 31, and susceptor 32 representing the] a furnace [(not shown)] used to soften the glass preform and initiate fiber draw. [The drawn fiber is shown at 33.] The nascent fiber surface is then passed through a coating cup, [indicated generally at 34,] which has a chamber [35] containing a coating prepolymer [36]. The liquid coated fiber from the coating chamber exits through a die [41]. The combination of the die [41] and the fluid dynamics of the prepolymer, controls the coating thickness. The prepolymer coated fiber [44] is then exposed to UV lamps [45] to cure the prepolymer and complete the coating process. Other curing radiation may be used where appropriate. The fiber, with the coating cured, is then taken up by a take-up reel [47]. The take-up reel controls the draw speed of the fiber. Draw speeds in the range typically of 1-20 m/sec. can be used. It is important that the fiber be centered within the coating cup, and particularly within the exit die [41], to maintain concentricity of the fiber and coating. A commercial apparatus typically has pulleys that control the alignment of the fiber. Hydrodynamic pressure in the die itself aids in centering the fiber. A stepper motor, controlled by a micro-step indexer [(not shown)], controls the take-up reel.

Coating materials for optical fibers are typically urethanes, acrylates, or urethane-acrylates, with a UV photoinitiator added. The apparatus [of Figure 10 is shown with] may have a single coating cup, but dual coating apparatus with

dual coating cups are commonly used. In dual coated cups, typical primary or inner coating materials are soft, low modulus materials such as silicone, hot melt wax, or any of a number of polymer materials having a relatively low modulus. The usual materials for the second or outer coating are high modulus polymers, typically urethanes or acrylics. In commercial practice both materials may be low and high modulus acrylates. The coating thickness typically ranges from 150-300  $\mu\text{m}$  in diameter, with approximately 240  $\mu\text{m}$  standard.

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